



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.                  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------|-------------|----------------------|---------------------|------------------|
| 10/579,083                       | 12/20/2006  | Theodor Gassmann     | 66968-0030          | 6357             |
| 84362                            | 7590        | 06/15/2009           | EXAMINER            |                  |
| GKN Driveline/TTG                |             |                      | PANG, ROGER L       |                  |
| c/o Kristin L. Murphy            |             |                      |                     |                  |
| 39533 Woodward Avenue, suite 140 |             |                      | ART UNIT            | PAPER NUMBER     |
| Bloomfield Hills, MI 48304       |             |                      | 3655                |                  |
|                                  |             |                      |                     |                  |
|                                  |             |                      | MAIL DATE           | DELIVERY MODE    |
|                                  |             |                      | 06/15/2009          | PAPER            |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/579,083             | GASSMANN ET AL.     |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Roger L. Pang          | 3655                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 8-26 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 8-26 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 20 December 2006 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____ .                                     |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5-12-06</u> .   | 6) <input type="checkbox"/> Other: ____ .                         |

## **DETAILED ACTION**

The following action is in response to application 10/579,083 filed on December 20, 2006.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “26 and 27” has been used to designate both side gears of the same size and side gears with different sizes (see page 10 of the specification, parts 26’, 27’, and Fig. 4).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara ‘479 in view of Trbojevich ‘183. With regard to claim 8, Kuwahara teaches a transfer

box comprising: a housing 84; an input shaft 86; a first output shaft 87 extending coaxially relative to said input shaft; a second output shaft 92 extending parallel to said first output shaft and said input shaft; and a differential gear assembly arranged between said input and first output shafts, wherein the input shaft carries a spider member 102 with a plurality of radial bearing arms for the differential gears 103, wherein a first side gear 100 is connected in a rotationally fast way to the first output shaft and wherein a second side gear 101 is rotatably supported on the input shaft and drives the second output shaft, wherein the teeth of the differential gears engage the teeth of the side gears. Kuwahara lacks the teaching of the differential gears being spur gears and the side gears being crown gears. Trbojevich teaches a differential assembly comprising: an input shaft 11; a first output shaft 16; a spider member 26 with differential gears 25, a first side gear 20 and a second side gear 32, wherein the differential gears being spur gears and the side gears being crown gears. It would have been obvious to one of ordinary skill at the time of the invention to modify Kuwahara to employ spur differential gears and crown side gears in view of Trbojevich in order to allow more simplified mounting of the differential. With regard to claim 9, Kuwahara teaches the box, wherein a gearwheel or sprocket wheel 88 for driving the second output shaft via a gearwheel stage or chain drive 94 is integrally connected to the second side gear. With regard to claim 10, Kuwahara teaches the box, wherein the input shaft 86 and the first output shaft 87 are each singly supported in the housing, and the input shaft is supported by a journal projection in a countersunk end portion of the first output shaft (Fig. 6). With regard to claim 11, Kuwahara teaches the box, wherein the input shaft 86 and the first output shaft 87 are each singly supported in the housing, and the input shaft is supported by a journal projection in a countersunk end portion of the first output shaft (Fig. 6). With regard to claim 12, Kuwahara

Art Unit: 3655

teaches the box, wherein the side gears are axially outwardly supported in opposite directions in the housing via bearings<sup>85/96</sup> of the input shaft and the first output shaft. With regard to claim 13, Kuwahara teaches the box, wherein the side gears are axially outwardly supported in opposite directions in the housing via bearings<sup>85/96</sup> of the input shaft and the first output shaft. With regard to claim 14, Kuwahara teaches the box, wherein the side gears are axially outwardly supported in opposite directions in the housing via bearings<sup>85/96</sup> of the input shaft and the first output shaft. With regard to claim 24, Kuwahara teaches the box, but lacks the teaching 24 wherein the side gears comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. Trbojevich teaches the box wherein the side gears 20/32 comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. It would have been obvious to modify Kuwahara to employ side gears comprising different rolling circle radii to provide a non-uniform torque distribution between the output shafts in view of Trbojevich in order to provide a preferred output driving ratio.

Claims 8-11, 15-23 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara '479 in view of Trbojevich '183. With regard to claim 8, Kuwahara teaches a transfer box comprising: a housing 12; an input shaft 14; a first output shaft 20 extending coaxially relative to said input shaft; a second output shaft 44 extending parallel to said first output shaft and said input shaft; and a differential gear assembly arranged between said input and first output shafts, wherein the input shaft carries a spider member 46 with a plurality of radial bearing arms for the differential gears 48/50, wherein a first side gear 52 is connected in a rotationally fast way to the first output shaft and wherein a second side gear 56 is rotatably supported on the input shaft and drives the second output shaft, wherein the teeth of the

differential gears engage the teeth of the side gears. Kuwahara lacks the teaching of the differential gears being spur gears and the side gears being crown gears. Trbojevich teaches a differential assembly comprising: an input shaft 11; a first output shaft 16; a spider member 26 with differential gears 25, a first side gear 20 and a second side gear 32, wherein the differential gears being spur gears and the side gears being crown gears. It would have been obvious to one of ordinary skill at the time of the invention to modify Kuwahara to employ spur differential gears and crown side gears in view of Trbojevich in order to allow more simplified mounting of the differential. With regard to claim 9, Kuwahara teaches the box, wherein a gearwheel or sprocket wheel 62 for driving the second output shaft via a gearwheel stage or chain drive 72 is integrally connected to the second side gear. With regard to claim 10, Kuwahara teaches the box, wherein the input shaft 18 and the first output shaft 20 are each singly supported in the housing, and the input shaft is supported by a journal projection in a countersunk end portion of the first output shaft (Fig. 1). With regard to claim 11, Kuwahara teaches the box, wherein the input shaft 18 and the first output shaft 20 are each singly supported in the housing, and the input shaft is supported by a journal projection in a countersunk end portion of the first output shaft (Fig. 1). With regard to claim 15, Kuwahara teaches the box, wherein the side gears are axially supported on one another, wherein at a first one of the side gears 56, there is axially firmly arranged a carrier 58 which extends over the other one of the side gears and via which the other one of the side gears is axially supported on the first one of the side gears (via 64). With regard to claim 16, Kuwahara teaches the box, wherein the side gears are axially supported on one another, wherein at a first one of the side gears 56, there is axially firmly arranged a carrier 58 which extends over the other one of the side gears and via which the other one of the side gears

Art Unit: 3655

is axially supported on the first one of the side gears (via 64). With regard to claim 17, Kuwahara teaches the box, wherein the side gears are axially supported on one another, wherein at a first one of the side gears 56, there is axially firmly arranged a carrier 58 which extends over the other one of the side gears and via which the other one of the side gears is axially supported on the first one of the side gears (via 64). With regard to claim 18, Kuwahara teaches the box, wherein between the carrier and the second one of the side gears, there is arranged an axial bearing 64 or friction discs for axial support. With regard to claim 19, Kuwahara teaches the box, wherein between the carrier and the second one of the side gears, there is arranged an axial bearing 64 or friction discs for axial support. With regard to claim 20, Kuwahara teaches the box, wherein between the carrier and the second one of the side gears, there is arranged an axial bearing 64 or friction discs for axial support. With regard to claim 21, Kuwahara teaches the box, but lacks the teaching wherein the side gears comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. Trbojevich teaches the box wherein the side gears 20/32 comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. It would have been obvious to modify Kuwahara to employ side gears comprising different rolling circle radii to provide a non-uniform torque distribution between the output shafts in view of Trbojevich in order to provide a preferred output driving ratio. With regard to claim 22, Kuwahara teaches the box, but lacks the teaching wherein the side gears comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. Trbojevich teaches the box wherein the side gears 20/32 comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. It would have been obvious to modify Kuwahara to employ side gears comprising

Art Unit: 3655

different rolling circle radii to provide a non-uniform torque distribution between the output shafts in view of Trbojevich in order to provide a preferred output driving ratio. With regard to claim 23, Kuwahara teaches the box, but lacks the teaching wherein the side gears comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. Trbojevich teaches the box wherein the side gears 20/32 comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. It would have been obvious to modify Kuwahara to employ side gears comprising different rolling circle radii to provide a non-uniform torque distribution between the output shafts in view of Trbojevich in order to provide a preferred output driving ratio. With regard to claim 25, Kuwahara teaches the box, but lacks the teaching wherein the side gears comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. Trbojevich teaches the box wherein the side gears 20/32 comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. It would have been obvious to modify Kuwahara to employ side gears comprising different rolling circle radii to provide a non-uniform torque distribution between the output shafts in view of Trbojevich in order to provide a preferred output driving ratio. With regard to claim 26, Kuwahara teaches the box, but lacks the teaching wherein the side gears comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. Trbojevich teaches the box wherein the side gears 20/32 comprise different rolling circle radii to provide a non-uniform torque distribution between the output shafts. It would have been obvious to modify Kuwahara to employ side gears comprising different rolling circle radii to provide a non-uniform torque distribution between the output shafts in view of Trbojevich in order to provide a preferred output driving ratio.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Irwin, Kinsley, Behar, and Kwasniewski have been cited to show similar transmissions.

**FACSIMILE TRANSMISSION**

Submission of your response by facsimile transmission is encouraged. The central facsimile number is (571) 273-8300. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see MPEP 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check.

Responses submitted by facsimile transmission should include a Certificate of Transmission (MPEP 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office (Fax No. (571) 273-8300) on \_\_\_\_\_ (Date)

Typed or printed name of person signing this certificate:

---

---

(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and MPEP 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roger L. Pang whose telephone number is 571-272-7096. The examiner can normally be reached on 5:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roger L Pang/  
Primary Examiner, Art Unit 3655

Roger L Pang  
Primary Examiner  
Art Unit 3655

June 11, 2009